

Order of Operations with Fractions

BEDMAS

*Remember that you need **common denominators** to **add** and **subtract** fractions*

Example 1

Evaluate: $\frac{5}{16} - \frac{3}{8} \times \frac{2}{3}$

► A Solution

$$\frac{5}{16} - \frac{3}{8} \times \frac{2}{3}$$

Multiply. Simplify first.

$$= \frac{5}{16} - \frac{\cancel{3}^1}{\cancel{8}_4} \times \frac{\cancel{2}^1}{\cancel{3}_1}$$

Use common denominators to subtract.

$$= \frac{5}{16} - \frac{1}{4}$$

$$= \frac{5}{16} - \frac{4}{16}$$

$$= \frac{1}{16}$$

Example 2

Evaluate: $\frac{3}{4} - \frac{2}{3} \div \frac{4}{5} \times (\frac{1}{8} + \frac{1}{4})$

▶ A Solution

$$\frac{3}{4} - \frac{2}{3} \div \frac{4}{5} \times (\frac{1}{8} + \frac{1}{4})$$

$$= \frac{3}{4} - \frac{2}{3} \div \frac{4}{5} \times (\frac{1}{8} + \frac{2}{8})$$

$$= \frac{3}{4} - \frac{2}{3} \div \frac{4}{5} \times (\frac{3}{8})$$

$$= \frac{3}{4} - \frac{\cancel{2}^1}{3} \times \frac{5}{\cancel{4}_2} \times (\frac{3}{8})$$

$$= \frac{3}{4} - \frac{5}{\cancel{2}_1 6} \times \frac{\cancel{3}^1}{8}$$

$$= \frac{3}{4} - \frac{5}{16}$$

$$= \frac{12}{16} - \frac{5}{16}$$

$$= \frac{7}{16}$$

First do the operation in brackets.

Use common denominators to add.

Divide and multiply from left to right.

To divide by $\frac{4}{5}$, multiply by $\frac{5}{4}$. Simplify first.

Multiply. Simplify first.

Use common denominators to subtract.

BEDMAS

4. Which operation do you do first?

a) $\frac{1}{3} \times (\frac{7}{8} - \frac{3}{4})$

b) $\frac{7}{8} \div (\frac{1}{3} \times \frac{1}{8})$

c) $\frac{9}{5} \times (\frac{3}{5} \div \frac{1}{10})$

d) $(\frac{5}{3} + \frac{7}{12}) \times \frac{4}{9}$

- 5.** Raj and Rena evaluated this expression:

$$\frac{5}{9} + \frac{2}{3} \times \frac{1}{2}$$

Raj got $\frac{8}{9}$. Rena got $\frac{11}{18}$. Who is correct?

What mistake did the other person make?

6. Evaluate. Which operation is done first?

a) $\frac{1}{2} \times \frac{3}{5} + \frac{1}{4}$

b) $\frac{2}{3} + \frac{5}{6} \div \frac{1}{2}$

c) $\frac{4}{5} \div \frac{7}{10} + \frac{1}{3}$

d) $\frac{1}{4} \times (\frac{11}{12} - \frac{5}{6})$

e) $\frac{1}{2} \times (\frac{4}{5} \div \frac{3}{10})$

f) $(\frac{3}{5} + \frac{7}{15}) \times \frac{5}{6}$

7. Evaluate. Show all steps.

a) $\frac{1}{8} \times \frac{3}{4} \times \frac{7}{5} \div \frac{7}{10}$

b) $\frac{14}{15} \div \frac{2}{3} \times \frac{5}{8} + \frac{3}{4}$

c) $\frac{2}{3} - \frac{1}{4} + \frac{1}{2} \div \frac{2}{5}$

d) $\frac{5}{6} - \frac{1}{5} \times \frac{5}{8} + \frac{2}{3}$

- 8.** Emma thinks that the expressions $1\frac{1}{2} \div \frac{1}{4} \times \frac{2}{3}$ and $1\frac{1}{2} \div (\frac{1}{4} \times \frac{2}{3})$ have the same value. Is Emma correct? Explain.

9. Evaluate.

a) $\frac{7}{10} - (\frac{1}{5} + \frac{1}{4}) \times \frac{2}{3}$

b) $(\frac{1}{4} + \frac{5}{6} - \frac{1}{3}) \times \frac{8}{5}$

c) $(\frac{6}{5} + \frac{4}{10}) \times (\frac{3}{8} - \frac{1}{16})$

10. Evaluate.

a) $\frac{5}{2} + \frac{1}{4} \times \frac{4}{5} \div \frac{1}{10} - \frac{1}{2}$

b) $\frac{4}{9} \times (\frac{2}{3} - \frac{1}{6}) - \frac{1}{8} \times \frac{4}{3}$